

Alsophila smithii

COMMON NAMES

kātote, Smith's tree fern, soft tree fern

BIOSTATUS

Native – Endemic taxon

CATEGORY

Vascular

STRUCTURAL CLASS

Ferns

SIMPLIFIED DESCRIPTION

Tree fern with green-stalked soft leaves to 2.5 m long. Trunk to 5 m tall, skirted by the remains of old leaves. Leaf stems covered in small red and white star-shaped hairs and pointed scales (lens needed). Sporangia arranged in small round capsules underneath leaves.

FLOWER COLOURS

No flowers

DETAILED DESCRIPTION

Trunks up to 8 m tall, 50–150 mm diameter, covered with appressed, dark brown stipe stubs. **Stipes** slender, pale to dark brown, finely rugose, bearing dark red-brown scales with entire margins devoid of spines.

Fronds up to 2.5 m long, held horizontally, 3-pinnate, soft, delicate (wilting readily if picked or drought stressed), adaxially dark glossy green, abaxially paler; midribs of dead fronds long persistent as a short skirt around trunk. **Longest primary pinnae** 250–500 mm long, abaxial surface bearing numerous red and white stellate hairs, and scales with entire or sparingly spinose margins. **Indusia** saucer-shaped, surrounding sori only at bases when mature. (Description modified from Brownsey & Smith-Dodsworth (2000)).

SIMILAR TAXA

Easily recognised by the soft, delicate fronds, persistent grass-like skirt of dead stipes and rachises, and by the stipe and frond red-brown scales. Young plants are often confused with *Alsophila cunninghamii* which often grows in the same habitats. The scales of *Alsophila cunninghamii* are more variable than those of *A. smithii*, often golden-brown to yellow and terminated by a short (1 mm long) stiff bristle like seta.

DISTRIBUTION

Endemic. New Zealand: North Island, South Island, Stewart Island/Rakiura, Chatham Islands, Auckland Islands.

HABITAT

Lowland to montane (mostly montane in northern New Zealand), usually in dense forest where it is often a common subcanopy species, in wetter areas often extending in open scrub, gullies and valley heads, and within the bushline. In wetter areas *Alsophila smithii* often forms a tree-fern land in cut over and/or deer damaged indigenous forest, and it may be a common species in pine plantations.

CURRENT CONSERVATION STATUS

2023 | Not Threatened

[Jump to previous conservation statuses](#)



Sori. Stokes Valley. Jan 2012. Photographer: Jeremy R. Rolfe, Date taken: 29/01/2012, Licence: CC BY.



Belmont Regional Park. Photographer: Jeremy R. Rolfe, Date taken: 01/09/2013, Licence: CC BY.

DETAILED TAXONOMY

FAMILY

Cyatheaceae

AUTHORITY

Alsophila smithii (Hook. f.) R.M.Tryon

SYNONYMS

Cyathea smithii Hook. f.; *Hemitelia smithii* (Hook.f.) Hook. ex Hook. et Baker

ENDEMIC TAXON

Yes

ENDEMIC GENUS

No

ENDEMIC FAMILY

No

ECOLOGY

FLOWERING

N.A.

FRUITING

N.A.

PROPAGATION TECHNIQUE

Easily grown but needs shelter from strong winds and must never be allowed to dry out. Does better in wetter parts of the country.

WETLAND PLANT INDICATOR STATUS RATING

FACU: Facultative Upland

Occasionally is a hydrophyte but usually occurs in uplands (non-wetlands).

OTHER INFORMATION

ETYMOLOGY

smithii: After the British botanist John Smith (1798-1888) or Stephenson Percy Smith (1840-1922).

NVS CODE

ALSSMI

CHROMOSOME NUMBER

$2n = 138$

PREVIOUS CONSERVATION STATUSES

2017 | Not Threatened

2012 | Not Threatened

2009 | Not Threatened

2004 | Not Threatened

[Jump to current conservation status](#)

REGIONAL CONSERVATION STATUSES

Otago: 2024 | Regionally Not Threatened Help

The regional threat classification system leverages off the national assessments in the NZTCS, providing information relevant for the regional context. Otago conservation status information is sourced from the "[Regional conservation status of indigenous vascular plants in Otago](#)" Jarvie S et al. (2024) report.

Auckland: 2025 | Regionally Not Threatened | Qualifiers: DPS, DPT Help

The regional threat classification system leverages off the national assessments in the NZTCS, providing information relevant for the regional context. Auckland conservation status information is sourced from the "[Conservation status of vascular plant species in Tāmaki Makaurau / Auckland](#)" Simpkins E et al. (2025) report.

REFERENCING AND CITATIONS

REFERENCES AND FURTHER READING

Brownsey PJ, Smith-Dodsworth JC. 2000. New Zealand Ferns and Allied Plants. David Bateman, Auckland, NZ. 168 p.

ATTRIBUTION

Fact sheet prepared for NZPCN by P.J. de Lange (Updated 23 March 2011). Description modified from Brownsey & Smith-Dodsworth (2000).

MORE INFORMATION

<https://www.nzpcn.org.nz/flora/species/alsophila-smithii/>

PDF DATE

08 September 2025